

DEPARTMENT OF THE ARMY  
SAVANNAH DISTRICT, CORPS OF ENGINEERS  
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DISTRICT PAMPHLET  
NO. 1110-1-1

ENGINEERING AND DESIGN  
DRAFTING STANDARDS

1. Purpose. This manual is prepared to set forth a clear, uniform set of drafting standards for the preparation of civil and military drawings made by or prepared under the supervision of the Savannah District.
2. Applicability. These standards are applicable to Savannah District personnel as well as other Corps districts, Government agencies or private firms under contract to produce drawings for the Savannah District.
3. General. Strict adherence to these standards will assure that all drawings and illustrations are accomplished in a manner that will be uniform, clear and easy for all to interpret. Reproduction requirements have also been considered in development of these standards. They should be applied to both civil and military projects, except those having clearly separate technical manuals, regulations or other guide criteria specifying other standards. Examples of these include shop drawings, master plans, real estate mapping and projects accomplished for other agencies. These standards are subject to updating as new products and techniques are introduced, tested and are proven to be advantageous. Recommended corrections, additions or deletions should be addressed to the Chief, Engineering Management and Support Section.

1 Appendix  
Drafting Standards

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This Pamphlet supersedes DP 1110-1-1, dated 1 Mar 1985

## PREFACE

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2. **Applicability.** These standards are applicable to Savannah District personnel as well as other Corps districts, government agencies or private firms under contract to produce drawings for the Savannah District.

3. **Scope.** The scope includes all drawings prepared for both civil and military projects, except those having clearly separate technical manuals, regulations or other guide criteria specifying other standards. Examples of these include shop drawings, master plans, real estate mapping and projects accomplished for other agencies.

## GENERAL INSTRUCTIONS

1. **General.** These standards were developed for designers and drafters to insure clear, uniform design drawings and illustrations. Primary consideration is also been given to the reproduction processes, equipment and techniques utilized later. Strict adherence to these standards is essential.
2. **Drawing media.** Original drawings shall be plotted by electrostatic or pen plotter on bond 30" x 42 overall for English and 841 mm x 594 mm for Metric.
3. **Reproduction/reduction.** All work will be prepared for printing at one-half size reduction unless otherwise instructed. Character definition shall be of such quality that drawings may be reduced to 35mm microfilm and blown back full size by micro reproduction process without showing evidence of filled-in loops or a running together of characters and/or lines.
4. **Lettering.** Generally, lettering shall be vertical, all caps, single stroke commercial gothic style, 1/8" minimum height, as illustrated later in this volume. Computer Aided Design and Drafting (CADD) systems are preferred, however, the computer generated drawings should exhibit the same general high quality standards specified for manual drafting (i.e., plotting, clarity, appropriate lettering size and style, etc.)
5. **Drawing scales.** Scales should be selected to avoid overcrowding and allow for half-size reductions. Where this is not practicable, congested areas should be pulled out and enlarged to a suitable scale. A graphic scale will be shown on every drawing or for every portion of the drawing of a different scale. The graphic scale is normally centered directly under the title of the view and need not be repeated on that sheet if the same scale reoccurs.
6. **Line weights.** During the initial selection of line weights, important features and outlines should be more prominently depicted than those of secondary or unrelated features. Line weights are described and delineated later in this volume. Care should be taken that pen tables used for plotting correctly represent the drawing as intended by the designer.
7. **Uniformity.** When making alterations or additions to existing drawings, special care should be exercised to follow the same style and size lettering, as well as other conventions on the drawing(s) in the interest of uniformity.

8. **Miscellaneous.** Appliqués (stick-ons), shading, screening and other techniques not specifically authorized herein are not permitted. These techniques are not compatible with our filing and/or reproduction processes.

9. **Color printing.** Special guidance relative to the overlay drafting and color printing process is contained in a subsequent portion of this volume.

## COLOR PRINTING PROCESS

1. **General.** Color printing via use of overlays, lends itself to many useful applications resulting in excellent legibility at one-half size reduction. Thus, the estimator, prospective bidder, construction contractor and others are aided as portions of the drawings are separated and highlighted by color.

2. **Drafting quality.** Drafting for color printing must be of the highest quality to assure satisfactory results. Strict adherence to line weights, lettering and other standards outlined in this volume must be enforced unless other, specialized instructions are given.

3. **Uses of color separation.** The following is a list of major conditions where color separation will be used to a maximum advantage. The term "basic" or "base sheet" refers to the sheet upon which the overlays will be applied. Base sheets are normally printed in black or in blue.

(a) **Demolition/removal.** Features to be demolished and/or removed will be depicted on a separate overlay. This overlay will normally be printed in green over a base sheet that shows surrounding existing to be retained features.

(b) **New vs. existing work.** New work shown in the presence of existing features will be prepared on an overlay and will normally be printed in red. Typical applications include:

- (1) A site plan showing new work over existing topography and features.
- (2) Additions to existing facilities.
- (3) Modifications or "rehab" work at existing installations.

(c) **Primary discipline over secondary discipline.** This application is made even on jobs consisting of "all new" construction. Applications include, but are not limited to:

- (1) Mechanical plan within an architectural "shell".
- (2) Interior electrical plan within an architectural "shell".
- (3) Exterior electrical plan on a basic site plan.

(4) Utility service lines applied to a basic site plan.

(5) Detail sheets where primary discipline is being depicted in the presence of other disciplines and the secondary disciplines are there to show information or interrelationships only.

(d) **For clarity or emphasis.** Examples will include:

(1) Separation of one phase of a job in the presence of an earlier or later phase.

(2) Showing development by FY or other time element.

(3) Showing development by cost account numbers (civil works) or another separating method desired.

(4) Distinguishing between types of work on a complex design; for example, on a hospital design where many kinds of water, power, gas and specialized utility services must be depicted together.

(e) **Other uses.** These may include:

(1) Showing the type and/or location of (civil works) recreational facilities around a Corps lake project.

(2) Depicting soil or rock classification types, faults or other soil/geologic conditions over a geographic area.

(3) Showing areas of responsibility or responsible parties (i.e., areas of Corps construction vs. development by the military base, government-furnished equipment vs. contractor-furnished equipment, etc.).

(4) Other applications as required.

**4. Line weights.** Line weights for new or highlighted work shall be heavier than for existing or subdued items. Although multicolor printing will be accomplished on the half-size copies, the color printing process is not possible when making full-size blue line copies or when working with composite microfilm. In these instances, only the line weight variation can effectively distinguish between the two conditions. Scale and space permitting, a separation of three line weights will be used to make this distinction.

**5. Basic-only sheets.** On certain sheets where none of the above described conditions apply, no color is required, and printing will be in the basic black (or blue). This includes most architectural and structural sheets on projects involving all new work. Also included in this classification are sheets consisting of all mechanical, electrical or other details and schedules where no other disciplines are shown and thus no need to print in color. However, if necessary for clarity or understanding, the designer may add a note stating that all work on this sheet is new unless otherwise noted.

**6. Uniformity.** In order to avoid confusion and to effect consistency with adjoining sheets prepared in the manner described above, the following items will always be shown on the basic sheet and not printed in color:

- (a) General notes.
- (b) List of abbreviations.
- (c) Titles and scales.
- (d) Legend narrative and headings.
- (e) tables and schedules.

However, where a need clearly exists to depict color in addition to the basic in a schedule, on notes, etc., this may be done. For example, this will be necessary if showing new and existing items or otherwise depicting multiple color-coded conditions within the same table, schedule, notes, etc.

**7. Legends.** The legend is always the vital key to unlock the meaning of the color and symbols used on any sheet. Great care must be exercised to create a legend that will clearly convey the design intent on that individual sheet or group of sheets. The legend should be near the front sheet in that discipline's series or on several individual sheets, as appropriate. If necessary for a clear understanding, a note may be added to specify the plates covered by each legend.

**8. Coding.** All color drawings, both basics and overlays, must be annotated to identify the plate number of that particular drawing (e.g., "Basic for Plate C-1", "Red Overlay for Plate C-1", etc.) This notation, used for matching, should normally be located in the lower right hand corner of the sheet, just below the trim line.

**9. Title Blocks.** One basic sheet may serve for more than one drawing, with the proper application of overlays. In these cases, care will be taken to ensure that the repetitive title block information is on the basic sheet and the varying title block information is on the overlay. Thus, some title block information normally shown on the basic (e.g., sheet titles; sheet, plate and sequence numbers; signatures, etc.), will necessarily be placed on the color overlay in these cases and will be printed in color.

**10. Registration.** Registration marks must be added to the each overlay for printing purposes. These registration lines must 1/2" vertically and horizontally from each of the four drawing corners, directly over and in the center of the basic sheet's heavy borderline.

**11. Miscellaneous.**

(a) All basic sheets and overlays will be accomplished in black, regardless of the color intended for final printing.

(b) As overlay drawings are created care should be taken to avoid duplication and overprinting in the same area.